ABSTRACT

METHOD VALIDATION OF VISIBLE SPECTROPHOTOMETRIC FOR DETERMINATION OF BENZALKONIUM CHLORIDE IN LEVOFLOXACIN EYE DROPS

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Determination of benzalkonium chloride in eye drop is very important to ensure its safety since it will result in an eye damage if the permissible levels is exceeded.

In this study, the determination of benzalkonium chloride level in levofloxacin eye drops was carried out by visible spectrophotometric method. Spectrophotometry is a simple, fast, and affordable method. Benzalkonium chloride has a λ_{max} of 210 nm, yet at this wavelength the absorbance of benzalkonium chloride was interfered by the absorbance of levofloxacin present in the eye drop formulation. Thus , the λ_{max} of benzalkonium chloride was shifted to the wavelength of 552 nm which lies in the visible light region by reacting benzalkonium chloride with eosin Y. At that wavelength the absorbance of benzalkonium chloride was selective, without any interference from other compounds. Linear regression equation was shown by various concentration of benzalkonium chloride ranging from 40.0 - 80.0 ppm, with r value of 0.9997, Vxo of 1.24%, and Xp of 4.19 ppm. The mean % recovery of benzalkonium chloride was 97.97%, coefficients of variance (CV) such as repeatability and the intermediate precision was 0.3% and 1.69%, respectively.

Keywords: Benzalkonium chloride, eye drops, visible spectrophotometry, eosin Y